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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/562,140	12/23/2005	Yoshifumi Adachi	12480-000155/US	5533
30593 7590 09/28/2007 HARNES, DICKEY & PIERCE, P.L.C. P.O. BOX 8910 RESTON, VA 20195			EXAMINER REDDY, KARUNA P	
			ART UNIT 1713	PAPER NUMBER
			MAIL DATE 09/28/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/562,140	<b>Applicant(s)</b> ADACHI ET AL.	
	<b>Examiner</b> Karuna P. Reddy	<b>Art Unit</b> 1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 16 July 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-10 and 12-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 12-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### DETAILED ACTION

1. This office action is in response to the amendment filed on July 16, 2007.

Applicants cancelled claim 11; amended claims 1-3, 7-10, 12, 16 and 20-21.

Claims 1-10 and 12-21 are currently pending in the application.

#### ***Claim Rejections - 35 USC § 102/103***

2. The statutory statements in paragraphs 3-5 of previous office action dated March 14, 2007 is incorporated herein by reference.
3. Claims 1-4, 7-10 and 12-21 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Mertens et al (US 6,605,673 B1 - WIPO publication WO 00/53644 is used for date purposes and the US equivalent is referred to in the rejection below).

The discussion with respect to Mertens et al in paragraph 7 of previous office action dated March 14, 2007 is incorporated herein by reference.

Furthermore, preferred solvent for the polyols and salt component is water, which is used in an amount of 0.5 to 10 wt% (column). It is particularly preferred to use  $\text{Al}_2(\text{SO}_4)_3$  and its hydrates thereof. The salt component is employed in amounts of from 0.001 to 10 wt% (column 4, lines 60-63). Because the amount of organic solvents must be held as low as possible for safety reasons, a stable

mixed phase of water / organic solvent / organic secondary crosslinker / salt component cannot be achieved at any concentration of compound. A preferred solution consists of 1.5 to 3 parts by weight of water, 0.5-1 parts by weight of polyol component and 0.4-0.6 parts by weight of an inorganic salt.

Conventionally the total amount of solvent employed ranges from 1 to 5 wt% relative to polymer product (column 7, lines 2-13).

Prior art is silent with respect to the new limitation of claims 8 and 9 i.e. concentration of multivalent metal component in a mixed solution of the aqueous multivalent metal compound and organic surface cross-linking agent of at least 1.80 wt%.

However, the prior art teaches with sufficient specificity a low amount of solvent from 1 to 5 parts by weight with content of water in the range of 1.5 to 3.0 parts by weight.

In the alternative, it is still obvious to one skilled in the art at the time invention was made to routinely optimize the parts by weight of solvent because Mertens et al teaches a low content of solvent for safety reasons. It is held that where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. See *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977). See also *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). See also *Peterson*, 315 F. 3d at 1330, 65 USPQ 2d at 1382. Therefore, in the absence of criticality or unexpected results, it would have been obvious to one skilled in the art at the time invention

was made to alter the proportions of various components as a matter of routine optimization and arrive at the instant invention.

4. Claims 1-6 remain rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Hatsuda et al (US 6,562,879 B1).

The rejection is adequately set forth in paragraph 8 of previous office action dated March 14, 2007 and is incorporated herein by reference.

5. Claims 1-4 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Nakashima et al (US 2004/0106745 A1).

The rejection is adequately set forth in paragraph 8 of previous office action dated March 14, 2007 and is incorporated herein by reference.

### ***Response to Arguments***

6. Applicant's arguments filed on July 16, 2007 in response to rejection of claim 1-4 and 7 under 35 U.S.C. 102(b) as anticipated, or in the alternative, under U.S.C. 103(a) as obvious over Mertens et al (US 6, 605, 673 B1) have been fully considered but they are not persuasive.

The applicant's argument that water absorbent resin composition of Mertens et al exhibits water extraction rate of 2.9 wt% and is lower than that

claimed by the instant invention is not convincing for the following reasons - The components in instant invention of examples 5, 6 and comparative run 8 include different variables. The trials are not back-to-back consecutive runs, because of the following differences -

Example 5	Example 6	Comparative Example 8
0.3 g 1,4 butanediol	-	-
0.3 g propylene glycol	1.0 g of ethylene glycol	1.0 g ethylene glycol
1.5 g H <sub>2</sub> O	2.0 g H <sub>2</sub> O	3.0 g H <sub>2</sub> O
1.0 g Al <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .14 H <sub>2</sub> O	0.8 g AlCl <sub>3</sub> .6 H <sub>2</sub> O	0.5 g Al <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .14 H <sub>2</sub> O
100 g resin A1	100 g resin A1	100 g resin A1
Heat (180 <sup>0</sup> C for 30 min.)	Heat (200 <sup>0</sup> C for 25 min)	Heat (180 <sup>0</sup> C for 30 min.)
Mix 100 g resin with mixture of solution of other components.	Mix 100 g resin with mixture of solution of other components	Mix 100 g resin with mixture of solution of other components

Back-to-back runs require that components remain the same in all trials with the inventive feature being different. Therefore, it is not clear if the differences in metal extraction rates are related to the type of organic crosslinker, multivalent metal, reaction conditions or the amount of water. Even if the trials are back-to-back consecutive trials, data is not commensurate in scope with the claims.

Art Unit: 1713

In response to applicants alleged argument that Mertens et al fails to suggest multivalent metal is around the surface of said particulate absorbent resin, examiner takes the position that since multivalent metal component is mixed in a similar fashion with water absorbent resin particle in both the instant invention and Mertens et al, particulate water absorbent resin would be expected to have multivalent metal around the surface in the water absorbent resin composition of Mertens et al.

In response to the applicants argument that Mertens et al do not teach a concentration of 0.40 or more for the multivalent metal compound, Mertens et al disclose metal compound in amounts of 0.001 to 1.0 wt% relative to the polymer product (column 4, lines 60-62). In addition, the solvent water is preferably in an amount of 1.0 to 4.0 wt% relative to polymer product (column 6, lines 61-63).

7. Applicant's arguments filed on July 16, 2007 in response to rejection of claims 1-6 under 35 U.S.C. 102(b) as anticipated, or in the alternative, under U.S.C. 103(a) as obvious over Hatsuda et al (US 6, 562, 879 B1) have been fully considered but they are not persuasive.

In response to applicants alleged argument that Hatsuda et al fails to teach or suggest a multivalent metal, examiner points applicant to paragraph 8, page 7, lines 7-9).

8. Applicant's arguments filed on July 16, 2007 in response to rejection of claims 1-4 under 35 U.S.C. 102(b) as anticipated, or in the alternative, under U.S.C. 103(a) as obvious over Nakashima et al (US 2004/0106745 A1) have been fully considered but they are not persuasive.

In response to applicants alleged argument that Nakashima et al fails to teach or suggest a multivalent metal, examiner points applicant to paragraph 9, page 9, lines 12-14).

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will



the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karuna P. Reddy whose telephone number is (571) 272-6566.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on (571) 272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Karuna P Reddy  
Examiner  
Art Unit 1713

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